

Tube Map Interface for a Coupled Scheduling and Diagnostics System, Phase I

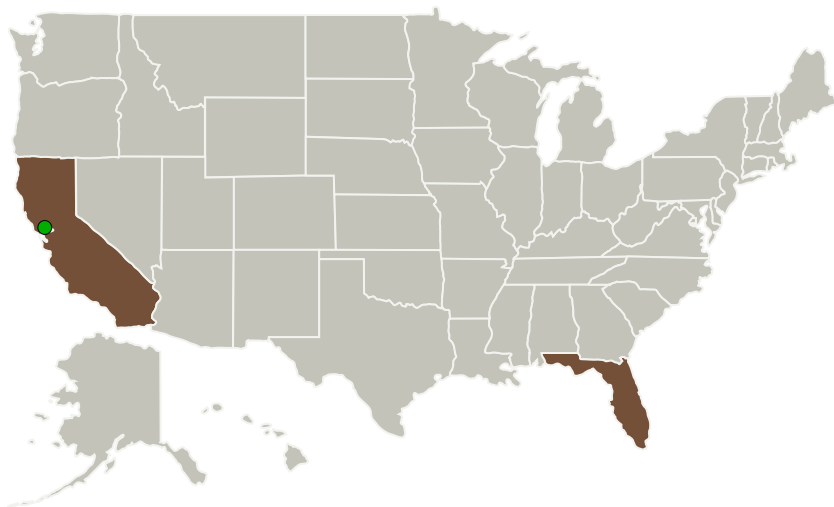
Completed Technology Project (2011 - 2011)



Project Introduction

We propose the concept of a tube map display as a means to effectively integrate schedule timeline information and fault diagnosis data into a single high value presentation. Tube maps are potentially a high value method of presenting multiple dimensions of information. This work will prove the feasibility of depicting combined schedule and fault information in the domain of asset scheduling using a communications simulation testbed. This testbed will be based upon key node and link abstractions of the space, ground and deep space networks. In order to simulate how mission schedules are affected by faults, a range of communication path faults can be selected by a user and injected into mission scenarios in order to gain further insights into how schedules can be tuned in real time to changing conditions on ground and space assets. Injected faults are modeled as a set of additional scheduling constraints in exactly the same way as other physical or mission preference constraints. The uniform constraint representation used capture mission requirements, preferences, constraints and faults can also be extended to multi-criteria optimization objectives for the resource scheduler enabling a mix of factors to drive the generation of the optimized schedule.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Aligned Concepts, LLC	Lead Organization	Industry	Longwood, Florida
● Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations	
California	Florida

Project Transitions

February 2011: Project Start

September 2011: Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/140704>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Aligned Concepts, LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

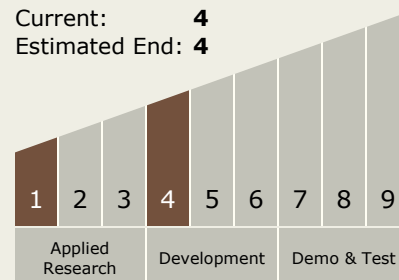
Carlos Torrez

Principal Investigator:

Don E Asumu

Technology Maturity (TRL)

Start: **1**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX04 Robotic Systems
 - └ TX04.4 Human-Robot Interaction
 - └ TX04.4.3 Remote Interaction

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System